Space Weather Forecast

Issued on Thursday, 08 December 2022 at 13:11 Local

This forecast provides a four day assessment of space weather events. The probabilities stated below are for reaching or exceeding the given levels. For more information about space weather impacts please see the Met Office Space Weather Scales https://www.metoffice.gov.uk/weather/learn-about/space-weather/uk-scales

---

Space Weather Forecast Headline: Chance of Moderate flares throughout. Chance of G1/Minor Storms Day 1.

Analysis of Space Weather Activity over past 24 hours

Solar Activity: Solar activity has been Low over the past 24 hours, with occasional low level Common-class flares, with the peak at 07/1304 UTC originating from a larger region in the northeast disc. There are nine sunspot regions on the visible disc, dominated by a large region in the south centre disk, which despite its size remains relatively stable. The region in the northeast also has a small delta spot (opposite magnetic polarity within one spot) in one of its intermediate spots. The remaining spots on the disk have shown either little activity or slight decay.
No Earth-directed Coronal Mass Ejections (CMEs) have been seen in available satellite imagery. Although a couple of recent CMEs are being assessed, these are currently considered unlikely to have an Earth directed component.

Solar Wind / Geomagnetic Activity: Solar winds showed the onset of a coronal hole fast wind, perhaps combined with some weak CME influence. Wind speeds rose steadily from slow levels around 360 km/s to elevated levels near 550 km/s. The Interplanetary Magnetic Field was mainly moderate but became strong between 07/1420-1830 UTC. The north-south component was moderately southward directed at first, before becoming more variable, but often northward directed. Geomagnetic activity showed two G1/Minor Storm intervals between 07/1200-1800 UTC, but has been Quiet to Unsettled since.

Energetic Particles / Solar Radiation: No solar radiation storms were observed.

Four-Day Space Weather Forecast Summary

Solar Activity: Solar activity is likely to remain at Low levels, with a daily chance of isolated Moderate-class flares, most likely from either of the two larger regions on the disc.

Solar Wind / Geomagnetic Activity: No Earth-directed CMEs have been observed in available imagery. Solar wind speeds are at elevated levels, due to the arrival of a fast wind from a coronal hole. Elevated solar wind speeds will likely persist through Days 1 and 2 (8-9 Dec) before steadily declining through the remainder of the period as the influence from the fast wind wanes.
Geomagnetic activity is expected to be initially Quiet to Active, with a declining chance of further G1/Minor Storm intervals due to fast wind influence. Geomagnetic activity is expected to return to Quiet to Unsettled conditions through Day 2.

Energetic Particles / Solar Radiation: Solar energetic particles are expected to remain at background levels throughout, with a daily slight chance of seeing S1 levels if any significant flares were to occur.

Issued by Met Office Space Weather Advisor, Tel: +44 (0) 330 135 4254 Email: moswoc@metoffice.gov.uk

© Crown Copyright 2022. All Rights Reserved.

Met Office Space Weather Forecast

Geomagnetic Storms:

Geo-Magnetic Storm Probability (Exceedance)	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Minor or Moderate	G1 to G2	No	30	5	1	1
Strong	G3	No	1	1	1	1
Severe	G4	No	1	1	1	1
Extreme	G5	No	1	1	1	1

Radio Blackouts - X Ray Flares:

X Ray Flares Probability	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	R1-R2 M Class	No	30	30	30	30
Very Active	R3 to R5 X	No	2	2	2	2

Solar Radiation Storms - (High Energy Protons):

Radiation Storms Probability (Exceedance)	Level (cm^{-2} sr^{-1} s^{-1})	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	≥ S1	No	5	5	5	5
Very Active	≥ S3 *	No	1	1	1	1

* S3 ≥ 10 MeV ≥ 1000 pfu and / or ≥ 50 MeV ≥ 10 pfu. (pfu = $cm^{-2}sr^{-1}s^{-1}$)

Issued by Met Office Space Weather Advisor, Tel: +44 (0) 330 135 4254 Email: moswoc@metoffice.gov.uk

© Crown Copyright 2022. All Rights Reserved.